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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/496,323	02/02/2000	David V. James	50N3440/1243	6052
24272	7590	04/26/2005	EXAMINER	
Gregory J. Koerner Redwood Patent Law 1291 East Hillsdale Boulevard Suite 205 Foster City, CA 94404			TANG, KENNETH	
			ART UNIT	PAPER NUMBER
			2195	

DATE MAILED: 04/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Notice of Allowability

Application No.

09/496,323

Examiner

Kenneth Tang

Applicant(s)

JAMES ET AL.

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3/24/05.
2. ☒ The allowed claim(s) is/are 1-5, 7-8, 11-25, 27-28, and 31-43; now renumbered as 1-37.
3. ☒ The drawings filed on 02 February 2002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).


\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 4/18/05.
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
**LEWIS A. BULLOCK, JR.**  
**PRIMARY EXAMINER**

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Gregory J. Koerner (Reg. No. 38,519) on 4/18/05.

**Please amend all claims according to the clean version below:**

1. A system for effectively performing a scheduling operation for an electronic device, comprising:
  - an allocation manager configured to handle a scheduling request from device software of said electronic device by analyzing request parameters for authorizing said scheduling request;
  - a scheduling manager configured to schedule a task that is authorized by said allocation manager; and
  - a processor for controlling said allocation manager and said scheduling manager to thereby perform said scheduling operation, wherein said request parameters include a resource requirement and an execution interval for performing said task, said execution interval being a maximum time period within which said task must be executed, wherein said scheduling operation is synchronized to a base cycle that serves as a timing reference for performing said task, said base cycle forming part of a contiguous base cycle

sequence, wherein said allocation manager analyzes said execution interval to ensure that an execution interval duration  $T$  conforms to a symmetrical execution-interval specification requirement.

2. The system of claim 1 wherein said task includes one or more isochronous processes that require a deterministic and guaranteed performance.
3. The system of claim 1 wherein said scheduling operation is performed in an electronic network that is implemented according to an IEEE Std 1394 serial bus interconnectivity standard.
4. The system of claim 1 wherein said task is performed on said electronic device that includes one of a consumer-electronics device, an audio-visual device, a set-top box device, and a computer device.
5. The system of claim 1 wherein said task includes one of a data transfer operation, a processor operation, a memory-access operation, and a signal-processing operation.

**Claim 6 is cancelled.**

7. The system of claim 1 wherein said device software issues said scheduling request to said allocation manager for scheduling said task.
8. The system of claim 1 wherein said allocation manager analyzes said resource requirement to limit total allocated device resources to one-hundred percent of available device resources.

**Claim 9 is cancelled.**

**Claim 10 is cancelled.**

11. A system for effectively performing a scheduling operation for an electronic device, comprising:

an allocation manager configured to handle a scheduling request from device software of said electronic device by analyzing request parameters for authorizing said scheduling request that include at least one of a resource requirement and an execution interval for performing said task;

a scheduling manager configured to schedule a task that is authorized by said allocation manager; and

a processor for controlling said allocation manager and said scheduling manager to thereby perform said scheduling operation, said scheduling operation being synchronized to a base cycle that serves as a timing reference for performing said task, said base cycle forming part of a contiguous base cycle sequence, said allocation manager analyzing said execution interval to ensure that an execution interval duration  $T$  conforms to a symmetrical execution-interval specification requirement, said symmetrical execution interval specification requirement being expressed by a formula:

$$T = (t_{\text{base}}) 2^n$$

where  $t_{\text{base}}$  is a duration of said base cycle, and  $T$  is said execution interval duration required for executing said task.

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12. The system of claim 1 wherein said allocation manager analyzes said scheduling request and returns one of an error message or a request grant message.

13. The system of claim 1 wherein said allocation manager adds said task to a task table along with at least one of said resource requirement and said execution interval.

14. The system of claim 13 wherein said allocation manager assigns a scheduling priority level to said task, said scheduling priority level being inversely proportional to said execution interval.

15. The system of claim 14 wherein said scheduling manager references said task table to identify said task for scheduling based upon said scheduling priority level.

16. The system of claim 15 wherein said scheduling manager references a ready-to-run table to determine whether said task can immediately be scheduled and executed.

17. The system of claim 15 wherein said scheduling manager schedules and begins executing said task.

18. The system of claim 17 wherein said scheduling manager references a resources-consumed table to determine whether said task has consumed all allocated resources, said scheduling manager terminating said task when an allocated-resource limit is reached.

19. The system of claim 17 wherein said processor resets said scheduling operation when a new base cycle begins.
20. The system of claim 1 wherein said scheduling operation includes a plurality of tasks that are scheduled to execute in a sequence in which only one of said plurality of tasks may execute at any given moment.
21. A method for effectively performing a scheduling operation for an electronic device, comprising the steps of:
- handling a scheduling request from device software of said electronic device by analyzing request parameters for authorizing said scheduling request with an allocation manager;
  - utilizing a scheduling manager to schedule a task that is authorized by said allocation manager; and
  - controlling said allocation manager and said scheduling manager with a processor to thereby perform said scheduling operation, wherein said request parameters include a resource requirement and an execution interval for performing said task, said execution interval being a maximum time period within which said task must be executed, wherein said scheduling operation is synchronized to a base cycle that serves as a timing reference for performing said task, said base cycle forming part of a contiguous base cycle sequence, wherein said allocation manager analyzes said execution interval to ensure that an execution interval duration  $T$  conforms to a symmetrical execution-interval specification requirement.
22. The method of claim 21 wherein said task includes one or more isochronous processes that require a deterministic and guaranteed performance.

23. The method of claim 21 wherein said scheduling operation is performed in an electronic network that is implemented according to an IEEE Std 1394 serial bus interconnectivity standard.

24. The method of claim 21 wherein said task is performed on said electronic device that includes one of a consumer-electronics device, an audio-visual device, a set-top box device, and a computer device.

25. The method of claim 21 wherein said task includes one of a data transfer operation, a processor operation, a memory-access operation, and a signal-processing operation.

**Claim 26 is cancelled.**

27. The method of claim 21 wherein said device software issues said scheduling request to said allocation manager for scheduling said task.

28. The method of claim 21 wherein said allocation manager analyzes said resource requirement to limit total allocated device resources to one-hundred percent of available device resources.

**Claim 29 is cancelled.**

**Claim 30 is cancelled.**

31. A method for effectively performing a scheduling operation for an electronic device, comprising the steps of:

handling a scheduling request from device software of said electronic device by analyzing request parameters for authorizing said



scheduling request with an allocation manager, said request parameters including at least one of a resource requirement and an execution interval for performing said task;  
utilizing a scheduling manager to schedule a task that is authorized by said allocation manager; and  
controlling said allocation manager and said scheduling manager with a processor to thereby perform said scheduling operation, said scheduling operation being synchronized to a base cycle that serves as a timing reference for performing said task, said base cycle forming part of a contiguous base cycle sequence, said allocation manager analyzing said execution interval to ensure that an execution interval duration  $T$  conforms to a symmetrical execution-interval specification requirement, said symmetrical execution interval specification requirement being expressed by a formula:

$$T = (t_{\text{base}}) 2^n$$

where  $t_{\text{base}}$  is a duration of said base cycle, and  $T$  is said execution interval duration required for executing said task.

32. The method of claim 21 wherein said allocation manager analyzes said scheduling request and returns one of an error message or a request grant message.

33. The method of claim 21 wherein said allocation manager adds said task to a task table along with at least one of said resource requirement and said execution interval.

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34. The method of claim 33 wherein said allocation manager assigns a scheduling priority level to said task, said scheduling priority level being inversely proportional to said execution interval.

35. The method of claim 34 wherein said scheduling manager references said task table to identify said task for scheduling based upon said scheduling priority level.

36. The method of claim 35 wherein said scheduling manager references a ready-to-run table to determine whether said task can immediately be scheduled and executed.

37. The method of claim 35 wherein said scheduling manager schedules and begins executing said task.

38. The method of claim 37 wherein said scheduling manager references a resources-consumed table to determine whether said task has consumed all allocated resources, said scheduling manager terminating said task when an allocated-resource limit is reached.

39. The method of claim 37 wherein said processor resets said scheduling operation when a new base cycle begins.

40. The method of claim 21 wherein said scheduling operation includes a plurality of tasks that are scheduled to execute in a sequence in which only one of said plurality of tasks may execute at any given moment.

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41. A computer-readable medium containing program instructions for performing scheduling operations for an electronic device by performing the steps of:

- handling a scheduling request by analyzing request parameters for authorizing said scheduling request from device software of said electronic device with an allocation manager;
- utilizing a scheduling manager to schedule a task that is authorized by said allocation manager; and
- controlling said allocation manager and said scheduling manager with a processor to thereby perform said scheduling operation, wherein said request parameters include a resource requirement and an execution interval for performing said task, said execution interval being a maximum time period within which said task must be executed, wherein said scheduling operation is synchronized to a base cycle that serves as a timing reference for performing said task, said base cycle forming part of a contiguous base cycle sequence, wherein said allocation manager analyzes said execution interval to ensure that an execution interval duration  $T$  conforms to a symmetrical execution-interval specification requirement.

42. A system for effectively performing a scheduling operation for an electronic device, comprising:

- means for handling a scheduling request by analyzing request parameters for authorizing said scheduling request from device software of said electronic device;
- means for scheduling a task that is authorized by said means for handling said scheduling request; and
- means for controlling said means for handling said scheduling request and said means for scheduling tasks to thereby perform said

scheduling operation, wherein said request parameters include a resource requirement and an execution interval for performing said task, said execution interval being a maximum time period within which said task must be executed, wherein said scheduling operation is synchronized to a base cycle that serves as a timing reference for performing said task, said base cycle forming part of a contiguous base cycle sequence, wherein said allocation manager analyzes said execution interval to ensure that an execution interval duration  $T$  conforms to a symmetrical execution-interval specification requirement.

43. A system for effectively performing a task scheduling operation for an electronic device, comprising:

an allocation manager configured to handle a scheduling request from device software of said electronic device, said scheduling request corresponding to a processing task of said electronic device, said allocation manager analyzing request parameters for authorizing said scheduling request, said request parameters including a resource requirement and an execution interval within which said processing task must be executed;

a scheduling manager configured to schedule said processing task after said processing task has been authorized by said allocation manager; and

a processor for controlling said allocation manager and said scheduling manager to perform said task scheduling operation, said task scheduling operation being synchronized to a base execution cycle of said electronic device, said allocation manager authorizing said processing task only when said execution interval is equal to an even multiple of a power of two times a cycle duration of said base cycle.

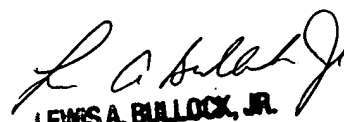
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kt  
4/19/05

  
LEWIS A. BULLOCK, JR.  
PRIMARY EXAMINER